Naval Weapons Systems
NSC 201

Instructor Introduction and Course Overview

Lieutenant P.A. Scott

- NROTC 3 year Scholarship, Univ of Wisconsin-Madison
- Commissioned May 1997
- SWOS
- STRIKE, USS DAVID R. RAY (DD-971)
- NAVIGATOR, USS INGRAHAM (FFG-61)

Book Issue

- Principles of Naval Weapons Systems
  - CDR J. Hall, USN

Syllabus

- Attendance is MANDATORY
- Presentation
- Exams
  - Format
  - Depth
- blackboard.muohio.edu

Naval Weapons Systems

Introduction to Naval Weapons

Basic Definitions

- **Weapons**: Instruments of offensive or defensive combat…something to fight with.

Basic Definitions

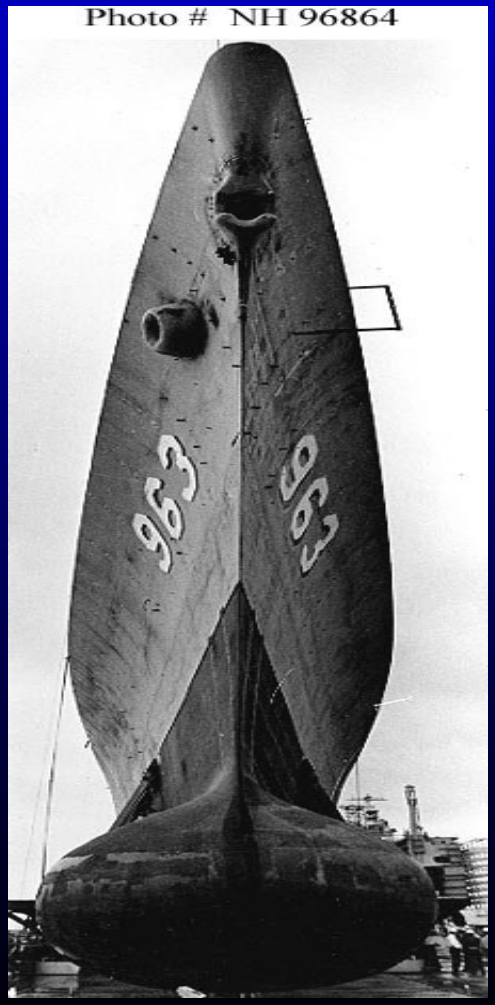
- **Ordnance**: Military supplies including weapons, ammunition, tools, & equipment.

Basic Definitions

- **Weapon Systems**: Combination of a weapon (or weapons) and the equipment used to bring the destructive power of the weapon against the enemy.

Weapon Nomenclature & Identification

- AN/SQS-53 Sonar
- "AN" means that the nomenclature complies with the system jointly adopted by U.S. armed forces (Army- Navy).
- First "S" identifies installation type…here, "water surface craft."



Weapon System Nomenclature & ID

- "Q" identifies equipment type…here, sonar and underwater sound.
- Final "S" indicates the purpose…here, detecting and ranging.
- 53 is the model number. Letter (i.e. - "D") would indicate the version.

Components of a Weapons System

- Components that detect, locate, and identify the target. (i.e. - radar)
- Components that direct or aim a delivery unit. (i.e. - tracking system)
- Components that deliver or initiate delivery of the weapon to the target. (i.e. - launching system)
- Components that destroy the target when in contact with or near it. (i.e. - missile/warhead)

Detect to Engage Sequence

- 2 kinds:
  - Own ship
  - Battle Group
- Detect (radar)
- ID
- Evaluate
- Engage (what weapon and when)

Weapon System Requirements

- Reliability
- Flexibility
- Safety
- Simplicity of Operation
- Maintainability
- Specific Military Requirements

Three Warfare Areas:

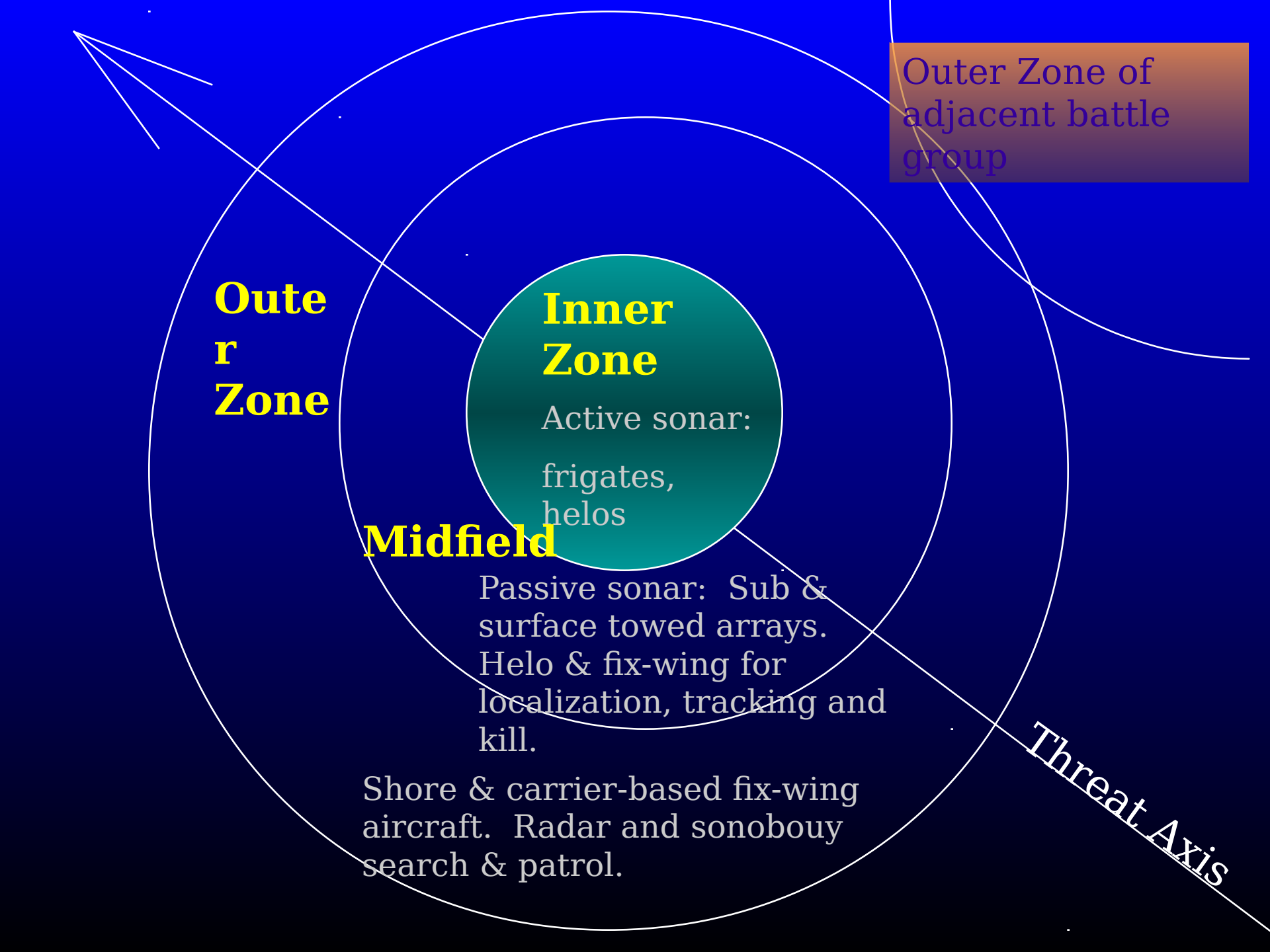
- Anti-Air Warfare (AAW)
- Anti-Submarine Warfare (ASW)
- Anti-Surface Warfare (ASUW)

Battle Group Operations

- Ship Employment
- High Value Unit (e.g. - aircraft carrier)
- Other units:
  - Cruisers, Destroyers, Frigates
  - Oilers, Supply ships, Tenders
  - Minesweepers, PC’s
  - Amphibious units
- Defense In Depth concept

Battle Group Operations

- Typical Battle Group:
  - CVN
  - CG x2
  - DDG
  - FFG
  - AOE
  - SSN x2

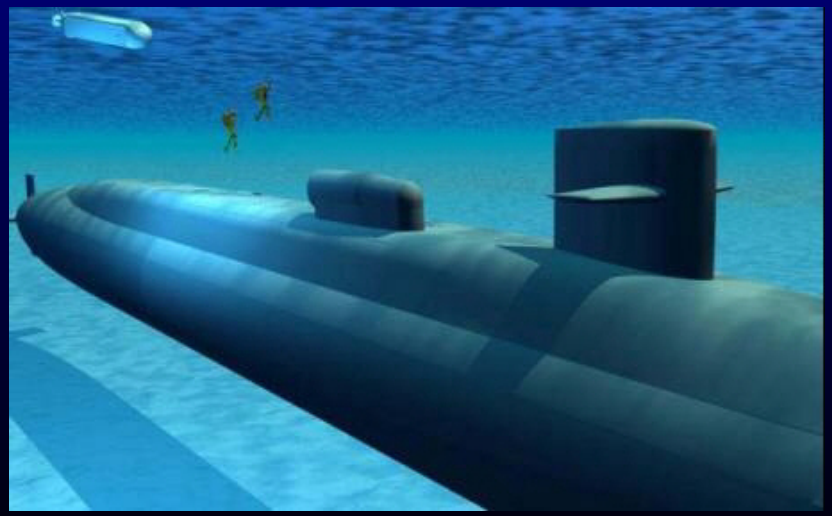

Outer Zone of adjacent battle group
Outer Zone
Inner Zone
Active sonar:
frigates, helos
Midfield
Passive sonar: Sub & surface towed arrays. Helo & fix-wing for localization, tracking and kill.
Shore & carrier-based fix-wing aircraft. Radar and sonobouy search & patrol.
Threat Axis

Deployment of Assets:

- Ships:
  - AOE, CVN, “Shotgun” > 10-20 nm
  - FFG > 20-50 nm

Deployment of Assets:

- Subs:
  - Independent steaming; out to 300 nm



Deployment of Assets:

- Aircraft:
  - AAW: E2C near CVN dependant on threat axis out to 300 nm. F-14/FA-18 out to 250 nm.
  - ASW: Helos to 7000yds. S-3 out to 300 nm. P-3 out to 500 nm.

Warfare Commander Structure

- Officer in Tactical Command(OTC): FB
- USWC: FX
- AWC: FW
- SUWC: FS
- EWC: FQ

- CWC: FZ

Questions?